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IV.—*Note on the best Points, in British North America, for making Observations on the Temperature of the Air ; and also for the Height of the Station above the Level of the Sea.* By Dr. RICHARDSON, F.R.S.

IN addition to the observations which it is desirable to make on the frozen soil of British North America, as detailed in the preceding notice, it would be a valuable service rendered to physical geography, if a series of observations on the temperature of the air, for the space of one year, could be obtained at various points throughout the Hudson's Bay territory ; as well as for the height above the level of the sea of the principal points of observation. For this purpose the Council of the Royal Geographical Society, with permission of Governor Pelly, have caused twenty carefully-graduated thermometers, besides six on a larger scale, fitted with the apparatus for ascertaining the height above the sea by the boiling temperature of water, to be distributed among the officers of the Hudson's Bay territory, who are earnestly requested to lend their aid in promoting so important an inquiry.

As the paper by Colonel Sykes, which accompanies this note, fully explains the mode of making observations on the boiling temperature of water for ascertaining the height of land, it only remains to point out *where* such observations may be of the most obvious utility in the Hudson's Bay countries.

One instrument, sent to Moose Factory, would suffice for ascertaining the heights between that post and Lake Superior ; and as the elevation of this lake above the Atlantic has been accurately obtained, a general verification of the instrument will thus be furnished. In returning from Lake Superior to Moose Factory, the observations should be repeated at the same spots ; and if the successive differences of level of the stations are found nearly to agree in going and coming, the difference of level, if any, between the Atlantic at the mouth of the Hudson, and Hudson's Bay, may be estimated.

Three instruments may be sent to York Factory, and distributed as follows. With one the heights on the route from the Factory to Lac la Pluie and Red River, may be obtained, and if opportunities offer, the operations may be carried on to Fort William, by which the levels would be taken to Lake Superior in another direction. Another instrument intrusted to the care of a gentleman going to Edmonton House, and across the Rocky Mountains to the Columbia, would give the altitudes of the various stations between Hudson's Bay and the Pacific. And a third, taken charge of by a gentleman going to Mackenzie's River, would suffice to level the country between York Factory and the Arctic Sea.

With regard to the temperature of the atmosphere, the following posts are desirable places for keeping registers :—

	<i>North Lat.</i>
Fort William	48° 45'
Lac la Pluie	49 0
Bas la Rivière Winipeg	50 30
Norway House	53 50
Moose Factory	50 55
York Factory	56 20
Cumberland House	54 10
Carlton House	53 20
Isle à la Crosse	55 20
Fort Chipewyan	59 0
Fort Resolution	60 40
Fort Simpson	61 10
Fort Norman	64 45
Fort Good Hope	67 20

Were the temperature registered for every hour, all that can be desired would be obtained ; but as such a register could not be conveniently kept at any of the posts for a whole year, observations four times a day may be substituted,—namely, at 2 and 8 in the morning, and 2 and 8 in the evening ; or, if only two observations can be regularly made every day, 8 o'clock, morning and evening, had better be selected for the hours, and means for ascertaining the time as correctly as possible should be taken. At some of the posts there are dials, and at others a meridian line is marked ; by these a watch may be corrected, taking care to apply the equation of time taken from an almanac. The thermometer should be hung up under a small shed, open on every side, supported on a central pillar, and thickly thatched with grass, or covered with brush ; a board being also fixed horizontally beneath the thermometer, to intercept radiation from the heated earth.

In the Hudson's Bay countries the mean temperature for the whole year occurs in the morning at about $\frac{1}{4}$ past 8, and in the evening at $\frac{1}{2}$ past 7 ; but 8 and 8 are selected as the nearest pair of hours. At 2 in the morning the average minimum temperature occurs, and the maximum at 2 P.M.

Register of Observations on Temperature of Air at _____
Height above the Level of the Sea _____

Date.	Temp. of Air in the Shade.				Wind and weather.	Remarks.
	A.M.		P.M.			
	2	8	2	8		
1840. Jan. 1	+ or -	+ or -	+ or -	+ or -	N.W. Snow.	Such as,—Lake frozen over—River set fast—Ice breaking up—General thaw—Spring birds arriving—Buds breaking out—Periods of trout-fishery, &c.—Spawning-times of various fish—Wild animals bring forth their young, or rutting, &c. &c.
2					S.W. Rain.	
3					&c. &c.	
4						
5						
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31						
Sums						
Means						

It is requested that the *original* record of all observations may be transmitted to Captain Washington, R.N., Secretary of the Royal Geographical Society, 21, Regent Street, London.